

## NATURAL RESOURCES CONSERVATION SERVICE CONSERVATION PRACTICE STANDARD

### PRESCRIBED FORESTRY

(Ac.)

CODE 409

#### DEFINITION

Manage forested areas for forest health, wood and/or fiber, water, recreation, aesthetics, wildlife habitat and plant biodiversity.

#### PURPOSE

- Maintain or improve forest health
- Protect soil quality and condition
- Maintain or enhance water quality and quantity
- Maintain or improve forest productivity
- Maintain or improve plant diversity
- Improve aesthetic and recreational values
- Improve wildlife habitat
- Achieve or maintain a desired understory plant community for forest products, grazing, and browsing.

#### CONDITIONS WHERE PRACTICE APPLIES

- On all forest land
- On land capable and suited to growing trees.

#### CRITERIA

##### General Criteria Applicable to All Purposes

Activities to achieve the intended purpose(s) shall be based on a forest prescription that addresses the owner's objectives as well as perpetuating a sustainable forest ecosystem based on ecological parameters such as forest types, soil types, past harvest history, natural community types and successional trends.

A forest prescription that are elements of a more comprehensive conservation plan shall recognize other requirements of the conservation plan and be compatible with its other requirements.

The prescription should include an inventory of the existing forest condition and a description of desired forest condition. ***See Appendix 1 for information on required cruise intensity.*** The prescription shall be developed for a minimum management period of 10 years.

Describe and give rationale for selection of silvicultural system including ecological and economic considerations.

Planned activities shall be examined collectively. Coordinate and time activities to optimize the stated purposes of conservation practices. Activities are not limited to conservation practices.

Planned activities shall lead to a distribution of age classes appropriate to forest conditions, landowner objectives and local ecosystems.

Provide a schedule of activities over at least a **10** year period.

***At a minimum, comply with applicable federal, state and local laws and regulations during the installation, operation and maintenance of this practice. See Field Office Technical Guide Reference - Best Management Practices for Controlling Soil Erosion and Sedimentation from Logging Operations in West Virginia***

<http://www.wvforestry.com/BMP%20Book%20Complete.pdf>

<http://www.wvforestry.com/LSCA%20Code.pdf>

##### Additional Criteria to Protect Soil Quality and Condition

Develop written guidelines to protect the soil resource during and after harvest operations and site preparation for planting.

Control or prevent erosion. Soil loss will not exceed allowable average annual soil loss (T) as defined by current, approved erosion prediction technology.

Minimize impacts on landscape when placing roads, harvest trails and landings. **See Field Office Technical Guide Reference - Best Management Practices for Controlling Soil Erosion and Sedimentation from Logging Operations in West Virginia**

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Seed disturbed areas for erosion and sediment control.

Maintain adequate cover to control soil erosion.

Prevent gully formation.

Avoid soil compaction during all activities occurring in the forest.

**At a minimum, comply with applicable federal, state and local laws and regulations during the installation, operation and maintenance of this practice. See Field Office Technical Guide Reference - Best Management Practices for Controlling Soil Erosion and Sedimentation from Logging Operations in West Virginia**

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#### **Additional Criteria to Maintain Water Quality and Quantity**

Maintain the quality and quantity of water flowing from and through forest lands.

Ensure road location, design, construction maintenance, and vegetation reestablishment to reduce water pollution.

Use and maintain **adequate width** filter strips or buffers to remove or reduce the transportation of sediment or organic matter into streams, lakes or other sensitive areas.

Develop written guidelines for stream crossings. Avoid altering stream courses and drainage patterns.

**At a minimum, comply with applicable federal, state and local laws and regulations during the installation, operation and maintenance of this practice. See Field Office Technical Guide Reference - Best Management Practices for Controlling Soil Erosion and Sedimentation from Logging Operations in West Virginia**

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#### **Additional Criteria to Maintain Forest Productivity**

Sustainable harvest levels shall be based on one or more of the following:

- Clearly documented growth and regeneration data
- Site index models
- Site productivity or culmination of mean annual increment (CMAI) growth
- Desired future condition
- Consideration of cyclical and natural disturbances.

Develop written guidelines on protecting the residual forest, including regeneration, during and following harvest operations.

Identify tree and shrub species to be retained.

Follow established guidelines for spacing, density, size class, number and amounts of trees and understory species to be retained.

Ensure spacing of residual trees is appropriate to their size and species.

Identify pest problems, including insects, diseases, mammals and invasive/noxious plants, and develop management guidelines.

#### **Additional Criteria to Maintain Plant Diversity**

Assess current conditions including ecological processes such as disturbance regimes, unique natural communities such as old-growth, rare and imperiled plant species including those that are state or federally listed, and water and soil resources.

Develop written guidelines addressing the management of these special plant species and their communities.

Native plant species shall be inventoried and managed for vertical and horizontal structural complexity, and understory species diversity.

Vary the criteria according to state, federal or local requirements.

#### **Additional Criteria to Improve Aesthetic and Recreational Values**

Develop written guidelines to improve ecotourism and recreation, including hunting and fishing.

Select and manage plant materials adapted to the soil and climatic conditions and that fulfill a specific aesthetic or recreational need.

#### **Additional Criteria to Improve Wildlife Habitat**

Develop written guidelines to recognize and maintain forest resources for terrestrial and aquatic life.

Identify and develop specific management guidelines for habitat protection areas, including riparian buffers, critical habitats and those with special needs.

Coordinate forest and wildlife management objectives and activities.

#### **Additional Criteria to Maintain a Desired Understory Plant Community for Forest Products, Grazing, and Browsing**

Develop written guidelines for inventorying plants, monitoring plant populations and protecting the forest ecology while allowing the sustainable harvest of non-timber products.

Assess the impacts of timber production and harvest on the non-timber products.

Space trees properly to produce desired forage production, increase desirable woody plants for browsing, and provide conditions favorable for understory forest products.

### **CONSIDERATIONS**

Consider adjacent and cumulative land use effects.

Consider social effects of decisions.

Assess potential landowner and user liability in the development of specifications for this practice.

Assess and manage the impacts of forest activities on water quantities.

***Consider cultural resources when planning this practice to ensure that the timing and methods of maintenance operations are compatible.***

***If available, utilize existing plans for upland wildlife management developed by USDA-NRCS and/or WV-DNR.***

### **PLANS AND SPECIFICATIONS**

Plans and specifications shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose(s).

The following components shall be included in the forest management plan:

- ***At a minimum the plan must contain all of the information outlined in Appendix 2 – Plan Preparation Format and Contents***
- ***Any required permits, including but not limited to, the CPA-052 or similar environmental documentation***
- ***Operation and maintenance requirements***

### **OPERATION AND MAINTENANCE**

Maintain a yearly summary of forest management activities and records of yield for all forest products harvested, including non-timber resources.

Conduct periodic inspections during and after treatment activities to ensure that the purposes are achieved and resource damage is minimized, e.g., post harvest inspection, assessment of insects, disease and other pests, storm damage, and damage by trespass. The results of the inspections shall determine the need for additional treatment under this practice.

Review timetables, schedules and coordination actions periodically and modify as needed.

### **REFERENCES**

Forest Stewardship Council-U.S. 2001. U.S. Regional Standards.

***West Virginia Forest Stewardship Operating Plan, West Virginia Division of Forestry, Revision 2/06***

***Best Management Practices for Controlling Soil Erosion and Sedimentation from Logging Operations in West Virginia***

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**Appendix 1 – CRUISE INTENSITY GUIDE**

Using roughly a coefficient of variation (CV) of 70% at 15% error one standard deviation (STD) or 68% confidence level.

**Small Acreage**

<b>ACREAGE (acres)</b>	<b># OF PLOTS</b>
<b>10-19</b>	<b>5</b>
<b>20-29</b>	<b>6</b>
<b>30-39</b>	<b>7</b>
<b>40-49</b>	<b>8</b>
<b>50-59</b>	<b>9</b>
<b>60-79</b>	<b>12</b>
<b>80-100</b>	<b>15</b>
<b>101-150</b>	<b>18</b>
<b>Over 150</b>	<b>22-25</b>

**Using formula**

$$n = \frac{(1)^2 (CV\ 70\%)^2}{(15\%)^2}$$

$$\# \text{ of Plots} = \frac{(1STD)^2 \times (CV)^2}{(E)^2}$$

**Plots needed at 68% Confidence Interval**

<b>E%</b>	<b>COEFFICIENT OF VARIATION %</b>								
	<b>120</b>	<b>110</b>	<b>100</b>	<b>90</b>	<b>80</b>	<b>70</b>	<b>60</b>	<b>50</b>	<b>40</b>
<b>5</b>	576	484	400	324	256	196	144	100	64
<b>10</b>	144	121	100	81	64	49	36	25	16
<b>15</b>	64	54	45	36	29	22	16	11	7
<b>20</b>	36	31	25	21	16	13	9	6	4

## **Appendix 2 - PLAN PREPARATION FORMAT AND CONTENTS**

*A forest management plan is a multiple-use document which contains integrated strategies for managing each of the major resource components on the client's property over a ten-year period. It contains planned management activities, including regeneration/harvest strategies and guidelines for addressing soil, water, air, plant, animal and human resource problems and concerns. They may or may not be conservation practices. All forested property is included.*

*The client shall rank their first objectives for the property as a whole, while providing for each of the other objectives in a compatible manner. With the client's objectives known, the professional forester can refer to the appropriate minimum standards and basic guidelines when developing the plan. The following components constitute the minimum information that should be included in all plans.*

### **1. COVER PAGE**

*The cover page shall include bold terminology identifying the plan as a Forest Management/Stewardship Plan. It shall also include the landowner's name, address, telephone number, the county where the property is located, and the name, address, phone number and West Virginia Registered Professional Forester number of the forester who prepared the plan.*

### **2. TABLE OF CONTENTS**

*This table will provide a quick reference to the specific sections of the management plan.*

### **3. OBJECTIVES**

*The client's primary management objectives for the property and a description of desired forest condition, along with the other resource concerns are identified in several paragraphs. These objectives should be identified through personal conversations with the client.*

### **4. LOCATION & ACCESSIBILITY**

*This includes the landowner's name, total property acreage, its county, and reference to the closest town and major highways. Accessibility and location of roads - this includes public road access to the property as well the location and condition of roads in the forested areas of the property itself.*

### **5. BOUNDARY AND WOODLAND DESCRIPTION**

*Describe the boundaries and how well they are marked and briefly describe the current woodland conditions. This may include such things as a general description of the timber conditions, wildlife habitat present, existing recreational facilities, gypsy moth info, etc.*

### **6. SUMMARY OF FOREST MANAGEMENT NEEDS AND OPPORTUNITIES**

*This section should contain a few short paragraphs which briefly state what practices should be performed to achieve the landowner's goals. It should contain a description of ecological and silvicultural systems and rationale for selection of silvicultural system.*

*This section should not duplicate detailed information contained in the stand recommendations.*  
*Examples are as follows:*

*Timber -- Identify target cutting schedule and opportunities for reforestation, improving timber growth and harvest, considering the overall objectives.*

*Wildlife -- Identify target species, presence of listed threatened and endangered species, desirable habitat types present, and opportunities for improving desirable habitat, considering the overall objectives. Reference to any threatened and endangered species lists for the particular county that is included in the appendix.*

### **Soil and Water Conservation**

- 1) *Identify areas that have existing erosion problems and areas requiring special consideration and monitoring (highly erodible areas, wetlands, riparian zones, sinkholes etc.).*
- 2) *Note applicable BMP considerations and provide supplemental BMP information in the appendix if needed.*

**Recreation** -- *Identification of existing recreational facilities, present and potential uses and general strategies for enhancing the landowner's desired uses.*

**Aesthetics** -- *Identification of areas which are unique from a scenic, vegetative, geological or historical standpoint. Also, should include strategies and goals for enhancing these amenities.*

**Cultural and Historical Resources** -- *If artifacts are found or the landowner has a particular interest, or knowledge of archaeological sites they should be provided contact information for the West Virginia Division of Culture and History. Collect site data for the completion of the Request for Cultural Resources Review (WV-180-4) – check property for evidence of any of the following: stone or brick foundations, stone piles, mounds, dug wells, depressions, ornamental plantings, flint/chert outcrops, flint/chert flakes, projectile points, rock overhangs, manmade features or objects over 50 years old*

### **7. EXPLANATION OF SIZE CLASS AND FOREST TYPES**

*Provide a brief description of site index and forest types and how this information will be used in the plan.*

### **8. TOPOGRAPHY AND SOILS DESCRIPTION**

*Provide a brief description of the predominant soil types, slopes and aspects on the property. Include soil descriptions and potential forest productivity. Identify any potential equipment limitations and/or erosion problems that may limit management opportunities. Refer to soils map.*

### **9. METHOD OF RECONNAISSANCE AND CRUISE DATA COLLECTION**

*Describe number plots in each stand, type of plots taken, how they were located and data collected on each plot. Edit the remaining information as appropriate to suit the conditions specific to the property. Sawtimber volumes must be calculated using "International 1/4" Tree Scale.*

### **10. GENERAL CRUISE INFORMATION (TABLE 1)**

*This information will be in table format and will include the landowner's name, date, and the following column headers.*

<i>a. Stand number</i>	<i>e. Average stand diameter - inches</i>
<i>b. * Acres</i>	<i>f. Basal area sq. ft.</i>
<i>c. * Total bd. ft. volume</i>	<i>g. Stocking trees</i>
<i>d. * Total cordwood volume</i>	

*\* These columns will be totaled for the entire property.*

### **11. STAND MANAGEMENT DESCRIPTIONS AND RECOMMENDATIONS**

*Stand management recommendations, including regeneration/harvest strategies, should integrate the various resource activities which are to be performed over the next ten-years. These activities should be designed to correspond with the landowner's objectives. They should describe in site specific detail what, where, when, why and how to perform practices, supplemented with appendix material where appropriate. This section should contain guidelines for addressing soil, water, air, plant, animal and human resource problems and concerns. They may or may not be conservation practices.*

The following information should be included in each stand description, if applicable:

<b>Acreage</b>	<b>Stocking level</b>
<b>Forest type</b>	<b>Resource concern considerations</b>
<b>Site index</b>	<b>Evidence of fire or pest damage</b>
<b>Size class</b>	<b>Presence of invasive plant species</b>
<b>Age</b>	<b>Recommended treatment(s)</b>

## 12. STAND MANAGEMENT SUMMARY (TABLE 2)

This information will be in table format and will include landowner's name, date, and the following column headers:

<b>Stand number</b>	<b>Stand description</b>
<b>Acres</b>	<b>Gypsy moth hazard rating</b>
<b>Site index</b>	<b>Recommended management activity</b>
<b>Cover type / Size class</b>	

## 13. 10-YEAR PROPOSED ACTIVITY SCHEDULE (TABLE 3)

This information will be in table format and will include the landowner's name, date, and the following column headers:

<b>Stand number</b>	<b>Year</b>
<b>Acres</b>	<b>Activity</b>

## 14. SOILS MAP

Provide a soils map with the property boundaries and soil types identified. The soils map shall include the following:

<b>North arrow</b>	<b>Date prepared</b>
<b>Landowner's name</b>	<b>Plan preparer's name</b>
<b>Plan acreage</b>	<b>Property boundary</b>
<b>County location</b>	<b>Map legend</b>

## 15. BOUNDARY CONDITION MAP

Provide a map with the property lines identified, indicating how the boundaries are marked. This map may be combined with the forest type map. The boundary map shall include the following:

<b>North arrow</b>	<b>Plan preparer's name</b>
<b>Landowner's name</b>	<b>Property boundary</b>
<b>Plan acreage</b>	<b>Map scale</b>
<b>County location</b>	<b>Map legend</b>
<b>Date prepared</b>	

## 16. FOREST TYPE MAP

Provide a map identifying the different management stands within the property. This map may be combined with the boundary condition map. The forest type map shall include the following:

<b>North arrow</b>	<b>Plan preparer's name</b>
<b>Landowner's name</b>	<b>Property boundary</b>
<b>Plan acreage</b>	<b>Map scale</b>
<b>County location</b>	<b>Map legend</b>
<b>Date prepared</b>	<b>Forest type delineations</b>

**17. TOPOGRAPHIC STAND MAP**

*The stand map should be computer generated or neatly hand drawn over a topographic map. The topographic stand map shall include the following:*

<b>North arrow</b>	<b>Direction and distance to nearest town</b>
<b>Landowner's name</b>	<b>Roads or trails within the property</b>
<b>County</b>	<b>Fixed improvements or protected areas within the property</b>
<b>Plan acreage</b>	<b>Bodies of water within or adjacent to the property</b>
<b>Plan preparer's name</b>	<b>Map scale (no less than 1":1000', if possible)</b>
<b>Property boundaries</b>	<b>Clearly defined stand boundaries</b>
<b>Access roads</b>	<b>UTMs or latitude and longitude coordinates</b>

**18. APPENDICES**

*Each Forest Stewardship plan should include the following appendices:*

- a. *Glossary of Terms*
- b. *Gypsy Moth Information*
- c. *Invasive Plant Species Information*

*This appendix should contain information about invasive plant species found on the property and species that could potentially invade the property. Short information briefs on invasive plant species are available at:*

<http://www.fs.fed.us/invasivespecies/speciesprofiles/index.shtml#pathogen>

- d. *Threatened and Endangered Species Information*
- e. *General Forest Management Recommendations*
- f. *General Timber Harvesting Recommendations*
- g. *Timber Sale Checklist*
- h. *Harvesting Near Streams, Wetlands or Riparian Zones*
- i. *Erosion Control and Seeding Guidelines for Logging Operations*
- j. *Cost Share Assistance Information and Agency Contacts*
- k. *Tax Tips for Forest Landowners (USDA Forest Service publication)*
- l. *Listing of References*
- m. *Activity Record*

*Other materials which describe common management practices should be included in all plans where they apply, for example, lists of common wildlife plantings with their suitable soil types and the season of year to plant them.*

**19. CRUISE DATA SUMMARIES**

*Inventory of the existing forest condition - This is a copy of the actual field data summaries from the cruise.*